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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,858	01/05/2001	Lawrence Yium-Chee Chiu	ARC920000054US1	3691

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EXAMINER

MCLEAN MAYO, KIMBERLY N

ART UNIT PAPER NUMBER

2187

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/755,858

Applicant(s)

CHIU ET AL.

Examiner

Kimberly N. McLean-Mayo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-12,14-20 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-12,14-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The enclosed detailed action is in response to the Amendment and the Supplemental Information Disclosure Statement submitted on June 2, 2003.

Information Disclosure Statement

2. The information disclosure statement filed June 2, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information crossed through has not been considered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 7, 9, 12, 15, 17, 20 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Menon et al. (USPN: 5,574,882) in view of Abe (USPN: 5,450,600).
Regarding claims 1, 4, 17 and 20, Menon discloses a method of updating parity data in a RAID clustered environment comprising locking parity data, without communicating with other nodes, for data managed in SCSI (small computer system interface) disks in a RAID clustered system (Figure 1; C 4, L 42; C 4, L 36; C 6, L 1-46), wherein locking prevents other nodes from

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modifying the parity (C 6, L 24-26); reading the parity data (C 6, L 27-28); generating new parity data by exclusive oring data from a first node and a second node (C 6, L 29-30); writing the parity data to a SCSI disk in the RAID system (C 6, L 31-44) and unlocking the parity wherein the unlocking and the writing steps are combined (C 6, L 45-46). Menon does not explicitly disclose combining the commands for writing and unlocking into a single command. However, Abe teaches the concept of combining commands{steps} (integrating basic commands into an integrated command) into a single command (integrated command – C 5, L 22-68; C 6, L 1-11). Abe teaches that this feature improves command operations by simplification (C 17, L 49-50). Hence, one of ordinary skill in the art would have recognized the benefits of Abe's teachings and would have been motivated to use these teachings with the teachings of Menon for the desirable purpose of simplification.

Additionally, with respect to claim 17, Menon discloses an article of manufacture, embodying logic to perform the above method steps of updating parity data in a RAID clustered environment (C 19, L 42-55; C 20, L 1-26).

Regarding claims 7 and 23, Menon discloses a RAID 5 system (C 2, L 48-51).

Regarding claims 9 and 12, Menon discloses an apparatus (Figure 1) for updating parity data in a RAID clustered environment comprising a plurality of SCSI storage devices in a RAID clustered system (Figure 1, Reference 20); data stored in the plurality of SCSI storage devices (inherent); a first node, (host), operatively coupled to the SCSI storage devices, that manages storage and

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retrieval of the data in the data storage devices, wherein the first node is configured to lock parity data, without communicating with other nodes, wherein locking prevents other nodes from modifying the parity (C 6, L 24-26); reading the parity data (C 6, L 27-28); generating new parity data by exclusive oring data from a first node (new data from host) and a second node (old data stored in the storage device) (C 6, L 29-30); writing the parity data to a SCSI disk in the RAID system (C 6, L 31-44) and unlocking the parity (C 6, L 45-46). Menon does not explicitly disclose combining the commands for writing and unlocking into a single command. However, Abe teaches the concept of combining commands {steps} (integrating basic commands into an integrated command) into a single command (integrated command – C 5, L 22-68; C 6, L 1-11). Abe teaches that this feature improves command operations by simplification (C 17, L 49-50). Hence, one of ordinary skill in the art would have recognized the benefits of Abe's teachings and would have been motivated to use these teachings with the teachings of Menon for the desirable purpose of simplification.

Claim 15 is rejected for the same rationale applied to claim 7 above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 6, 14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menon et al. (USPN: 5,574,882) in view of Abe (USPN: 5,450,600) as applied to claims 1, 9 and 17 above and further in view of IBM Technical Disclosure Bulletin "Limited Distributed DASD Checksum".

Menon and Abe disclose the limitations cited above in claims 1, 9 and 17, however, Menon and Abe do not disclose a RAID 4 system. The IBM Technical Disclosure Bulletin discloses a RAID 4 system (Figure 1). Additionally, the IBM Technical Disclosure Bulletin discloses that adding or removing units to a RAID 4 system is relatively simple because the change does not affect the other units (Lines 14-16). Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a RAID 4 system in the system taught by Menon and Abe for the desirable purpose of simplification (providing a simpler means for adding or removing units to the RAID system).

7. Claims 8, 16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over in Menon et al. (USPN: 5,574,882) in view of Abe (USPN: 5,450,600) as applied to claims 1, 9 and 17 above and further in view of Lyons (USPN: 6,101,615).

Menon and Abe disclose the limitations cited above in claims 1, 9 and 17, however, Menon and Abe do not disclose a RAID 6 system. Lyons discloses a RAID 6 system (Figure 5). Lyons discloses that a RAID 6 system provides improved data protection by providing two parity drives (C 1, L 49-50). Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a RAID 6 system in the system taught by Menon and Abe for the desirable purpose of increased data protection and reliability.

8. Claims 2-3, 10-11 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Menon in view of (USPN: 5,574,882) and Abe (USPN: 5, 450,600) as applied to claims 1, 9 and 17 above and further in view of Ofer (USPN: 5,892,955).

Menon and Abe disclose the limitations cited above in claims 1, 9 and 17, however, Menon and Abe do not explicitly disclose the locking step comprising issuing a RESERVE command nor the unlocking step comprising issuing a RELEASE command. Ofer teaches that the standard SCSI RESERVE command is used to reserve/lock data storage (C 1, L 27-30). Also, Ofer discloses a SCSI system wherein the SCSI RELEASE command is used to unlock the locked storage system. The system taught by Menon and Abe is a SCSI storage system, which means the system has a RESERVE and a RELEASE command. Hence, it would be obvious to use the RESERVE command to lock the parity and to use the RELEASE command to perform the unlocking for the desirable purpose of simplification and efficiency. Using an already existing command, prevents the need to develop new designs and/or implementations to perform the locking and unlocking functionality. Therefore, it would have been obvious to one of ordinary skill in the art to use the RESERVE command to lock parity and to use the RELEASE command to unlock parity for the desirable purpose of efficiency and simplification.

Response to Arguments

9. Applicant's arguments filed June 2, 3003 have been fully considered but they are not persuasive.

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Regarding Applicant's argument that Abe fails to teach (1) a RAID clustered system; (2) a SCSI disk in a RAID system; (3) parity; (4) writing and unlocking parity data; and (5) combining a writing command and an unlocking command, Abe was not relied upon for teaching these features. The rejection made above is a 35 USC 103 (a) which indicates that all claimed features are not taught by a single prior art, otherwise a 35 USC 102 rejection would have been made. Accordingly, the primary reference, Menon, is relied upon for teaching (1) a RAID clustered system; (2) a SCSI disk in a RAID system; (3) parity; (4) writing and unlocking parity data. Menon discloses a write command and an unlocking command, however, Menon does not disclose combining these commands into a single command. Abe, the secondary reference, is relied upon solely for teaching the concept of combining commands into single commands. Thus the combined teachings of the prior art disclose the claimed invention.

Additionally, In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Abe teaches that combined commands provides simplification and improves commands operation and thus suggests the use of such concept for the purpose of simplification and improved command operation. Designs are implemented to meet certain goals and

requirements and thus a system design requiring or desiring simplified command operation would be motivated to use to teachings of Abe for such a purpose.

Regarding Applicant's argument that the combined references teach away from the claimed invention, it appears that the Applicant is making such an argument on the basis of structurally incorporating one reference into another. However, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

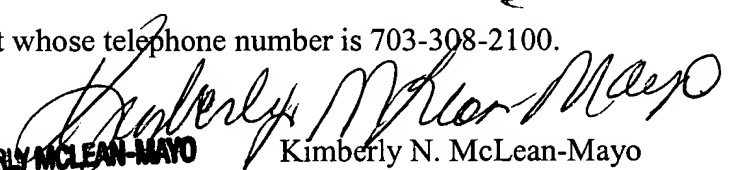
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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 703-308-9592. The examiner can normally be reached on M-F (9:00 - 6:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 703-308-1756. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7329 for regular communications and 703-746-7240 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2100.


KIMBERLY MCLEAN-MAYO
PRIMARY EXAMINER

Kimberly N. McLean-Mayo
Examiner
Art Unit 2187

KNM

July 28, 2003